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Assessment of sleep quality/quality of life and affecting factors ın nurses working ın child ıntensıve care unıt

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ABSTRACT

Background: Insomnia, deterioration of sleep rhythm, deterioration of sleeping integrity, and involuntary movements in sleep impairs the life quality of nurses and also negatively affects working efficiency.

Aim: We aimed to evaluate the complaints of sleep disorders with both subjective and objective tests among nurses working in the intensive care unit and compare these complaints with nurses working in policlinic and other services.

Study Design: This was a cross-sectional study.

Methods: The study was designed a cross-sectional study on nurses working at University Medical Faculty between April and May 2017 using different forms. The bivariate and partial correlation tests were used to analyze the correlations between parameters. Univariate and multiple binary logistic regression analyses were performed to estimate influencing effects of multiple variables on beck depression scale (BDS), Epworth sleepiness scale, and Pittsburgh sleep quality index scales. A two-sided $P < 0.05$ was considered statistically significant.

Results: Among the 44 shift-working nurse participants, 31.8% were 25–29 years old, 31.8% were 30–34 years old, 13.6% were 35–39 years old, and 22.8% were ≥40 years old. Their average age was 30.5 years old. (min: 22 - max:46) In our study, BDS score of the nurses working in pediatric intensive care unit was higher than the nurses working in service and polyclinics. ($P < 0.01$) In addition, intensive care nurses can be said to be more stressful than other units because of the need for emergency intervention and precise follow-up and the presence of more patients and workload. We found that nurses working in the ICU are significantly more sleepy than nurses on the floor. Among nurses, current or previous night work experience was associated with more caseness of insomnia than no night work experience.

Conclusion: It should be taken into consideration that the service provided by health personnel may affect human health very seriously. Therefore, this issue should be approached in consideration of how seriously the performance of sleep disorders will affect their performance.

Key words: Beck depression scale, nurse, pediatric intensive care unit, sleep quality

INTRODUCTION

Sleep is one of the basic and indispensable daily life activities that affect the quality of life and health of the individuals. Sleep is a concept that has physiological, psychological, and social dimensions.[1] Sleep is one of the basic requirements of human beings which is important for health and quality of life at all ages.[2] While adequate and quality sleep improves the academic success, human relations, physical and mental health of the individual positively, and inadequate or poor quality sleep reduces the quality of life of the individual by causing excessive sleepiness during the day.

Nurses working in intensive care unit are a group with heavy duty and responsibilities who are working under intense stress and pressure.[3,4] Nursing requires more mental and physical health professions than other works because it is based on communication with people. However, the negative factors that nurses encounter in the working life affect nurses' work efficiency, mental and physical health, and social life. This leads to a decrease in work efficiency, an economic loss of the institution, an increase in work accidents.[5-8] It has been shown that working in shifts negatively affects the physiological and psychological health of employees, their social lives and patient safety.[9,10] It is believed that the occupational difficulties of health-care professionals are among the factors that increase the anxiety. Sleep problems are at the forefront of professional difficulties. Insomnia, deterioration of sleep rhythm, deterioration of sleeping integrity, and involuntary movements in sleep impairs the life quality of nurses and also negatively affects working efficiency.[11]

In this study, it is aimed to evaluate the complaints of sleep disorders with both subjective and objective tests among nurses working in the intensive care unit and compare these complaints with nurses working in policlinic and other services.

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MATERIALS AND METHODS

The study was designed a cross-sectional study on nurses working at University Medical Faculty between April and May 2017 using sociodemographic information form, social funtioning (SF)-36 quality of life form, beck depression scale (BDS), Epworth sleepiness scale (ESS), and Pittsburgh sleep quality index (PSQI) scales. The nurses working in the medical faculty child hospital for at least a year constituted the study population. The study was approved by "Medical Research Local Ethics Committee" of University.

BDS

The purpose of the BDS is to determine the degree of depressive symptoms objectively and to form a total of 21 categories and to give 0–3 points for each category. Cut-off score was accepted as 17 points.

SF-36 Quality Of Life Form

The SF-36 quality of life scale consists of the parameters that assess physical function (PF), pain, general health (GH), energy status, social function, mental status role, and mental health status. The calculation was made with 0-100 points for each item.

ESS

The ESS measures the general level of daytime sleepiness. A total of 8 conditions are required, and 3 points are required for each case. A score of 10 points out of a total of 24 points was accepted as evidence of the presence of pathological sleepiness.

PSQI Scales (PSQI)

PSQI scales are an evaluation scale that provides a quantitative measure of sleep quality. It contains 24 questions. There are seven components. The total score is between 0 and 21. The higher the total score, the lower the sleep quality.

Statistical Analysis

Statistical analysis was performed using SPSS version 22.0 (IBM, Armonk, NY, USA). The normality of parametric data was analyzed by the Shapiro–Wilk test. Numerical variables were expressed as mean ± SD or median (minimum and maximum) where appropriate. The comparison between groups for data with a normal distribution was performed using Student's t-test, and the comparison between groups for data that did not show a normal distribution was performed using the Mann–Whitney U-test. Categorical variables were compared by means of a χ^2 test. The bivariate and partial correlation tests were used to analyze the correlations between parameters. Univariate and multiple binary logistic regression analyses were performed to estimate influencing effects of multiple variables on BDS, ESS, and PSQI. A two-sided $P < 0.05$ was considered statistically significant.

RESULTS

Among the 44 shift-working nurse participants, 31.8% were 25–29 years old, 31.8% were 30–34 years old, 13.6% were 35–39 years old, and 22.8% were ≥40 years old. Their average age was 30.5 years old (min: 22 - max:46). Although 63% (6) was younger than 35 years, the ratio of those who work for 10 years longer than those who do not work is equal. The majority (77.8%) were married. Only two of them (0.04%) had completed 2-year university; the others were university graduates or above. They had been working as nurses for 6 months to 21 years, with a mean of 7 years [Table 1].

Nearly half of them (59.1%) worked on a night shift, and 40.9% (18) worked on a day shift. The majority of nurses working in all three departments did not smoke at all. (n: 27 %61.3) Almost no nurse has consumed alcohol at any time of her life (n: 41 %93.1).

The mean PSQI score was 9.71 ± 4.01 (range = 4–19), and 34 (77%) scored >5, which indicates poor sleep quality. (P = 0.113) the pediatric intensive care unit (PICU) nurse's PSQI scores were higher than service and policlinic nurse's scores. The ESS showed that 63.7% (28) of nurses had excessive daytime

Table 1: Demographic characteristics of the study population

Demographic characteristics	PICU (%)	Polyclinics (%)	Service (%)	*P*
Age (years)				
25–29	5 (35.7)	4 (28.6)	5 (35.7)	0.293
30–34	5 (35.7)	2 (14.3)	7 (50)	
35–39	1 (16.7)	3 (50)	2 (33.3)	
>40	3 (30)	6 (60)	1 (10)	
Education				
License	14 (35)	13(32.5)	13 (32.5)	0.101
Master degree	0	0	2 (100)	
2 years university	0	2(100)	0	
Year in work (years)				
<10	10 (45.4)	7 (31.8)	5 (22.8)	0.022
≥10	4 (18.3)	8 (36.3)	10 (45.4)	
Section preference				
Assignment	10 (37)	4 (14,8)	13 (48.1)	0.101
Self-preference	4 (23.5)	11 (64.7)	2 (11.8)	
Thinking of professional change				
Yes	9 (34.6)	6 (23.1)	11 (42.3)	0.027
No	5 (27.8)	9 (50)	4 (22.2)	
Marital status				
Married	7 (21.9)	15 (31.3)	10 (46.9)	0.002
Single	7 (70)	0	3 (30)	
Divorced	0	0	2 (100)	
Children				
Yes	6 (18.8)	14 (43.8)	12 (37.5)	0.006
No	8 (66.7)	1 (8.3)	3 (25)	
Using antidepressant				
Yes	1 (20)	2 (40)	2 (40)	0.834
No	13 (33.3)	13 (33.3)	13 (33.3)	
Smoking cigarette				
Yes	5 (35.7)	9 (60)	3 (20)	0.077
No	9 (33.3)	6 (22.2)	12 (44.5)	
Drinking alcohol				
Yes	1 (33.3)	2 (66.7)	0	0.524
No	13 (31.7)	13 (31.7)	15 (36.6)	
Working Method				
Always morning shift	2 (11.1)	14 (77.8)	2 (11.1)	0.512
Always night shift	12 (46.2)	1 (3.8)	13 (50)	
Family				
Elementary family	14 (34.1)	14 (34.1)	13 (31.7)	0.76
Extended family	0	1 (33.3)	2 (66.7)	

PICU: Pediatric intensive care unit

sleepiness (The ESS score ≥10) and the score of the nurses working in PICU was significantly higher than the nurses working in service and polyclinics. ($P < 0.01$) A statistically significant difference was found between the average of the BDS scores of the nurses according to the unit they worked ($P < 0.01$) [Table 2]. Using univariate logistic regression analysis, working in PICU (odds ratıo (OR) 1.61, 95 % confidence interval (CI) 1.16–2.23) is independently associated not only with increased ESS but also associated with increased BDS (OR 1.23, 95 % CI 0.99–1.52). With multiple logistic regression analysis, working in PICU is independently associated with increased ESS (OR 1.68, 95 % CI 1.21–2.29) and BDS (OR 1.26, 95 % CI 1.01–1.56) again.

The SF-36 subscales of the nurses had a median PF (Physical functioning) score of 68 (35-86), an average PHR (Role Limitations Due to Physical Health) score of 25 (0-100), an average pain score of 58 (35–90), and a median GH score of 50 (35–66). The median E/F (Energy/Fatigue) score was 45 (21–60), an average EPR (Role Limitations Due to Emotional Problems) score of 34 (0–100), an average Emotional Well-being score of 68 (36–84), and an average SF score of 63 (38–75) [Table 3].

The PF and EPR scores of the nurses working in the intensive care unit were higher than the nurses working at the other units. ($P < 0.05$) Lower PHR scores were detected among nurses working in intensive care units than nurses working in other units. ($P < 0.05$) When the other SF 36 life scale subgroups were examined, there was no statistically significant difference between the nurses who were working in different units.

The night shift nurses in this study had worse sleep quality (PSQI score: 15) compared to those who worked day shift (PSQI score: 10) (< 0.01). There was no statistically significant difference between day shift nurses and night shift nurses when evaluated in terms of BDS and Epworth sleepiness scale [Table 4].

Table 2: Sleep quality and quality of life scores of nurses

Scales	PICU	Polyclinic	Service	*P*
BDS	20 (17–23)	15 (10–18)	11 (10–13)	< 0.01
ESS	17 (12–18)	9 (6–11)	10 (6–13)	<0.01
PSQI	12 (11–14)	10 (4–11)	9 (5–11)	0.113

PICU: Pediatric intensive care unit, BDS: Beck depression scale, ESS: Epworth sleepiness scale, PSQI: Pittsburgh sleep quality index scales

Table 3: SF 36 scores of the nurses

SF 36 subgroups	PICU	Service	Polyclinics	*P*
Physical functioning	78 (65–86)	55 (35–75)	55 (45–75)	0.014
Role limitations due to physical health	0 (0–50)	25 (0–100)	50 (25–56.3)	0.049
Role limitations due to emotional problems	67 (25–100)	34 (0–34)	100 (0–100)	0.014
Energy/fatigue	52 (21–56)	35 (25–60)	50 (40–50)	0.405
EWB	68 (55–84)	64 (36–72)	68 (64–72)	0.912
SF	75 (60–75)	50 (38–63)	50 (38–68)	0.119
Pain	55 (38–68)	55 (35–68)	68 (45–90)	0.105
General health	60 (33–66)	45 (40–65)	50 (35–50)	0.490

PICU: Pediatric intensive care unit, EWB: Emotional well-being, SF: Social funtioning, BDS: Beck depression scale, ESS: Epworth sleepiness scale

Table 4: Sleep quality and quality of life scores of nurses according to shifts

Scales	Night shift	Day shift	*P*
BDS	18 (16–24)	14 (11–21)	0.31
ESS	10 (8–12)	9 (6–13)	0.33
PSQI scales	15 (12–18)	10 (8–13)	<0.01

PSQI: Pittsburgh sleep quality index scales, EWB: Emotional well-being, SF: Social funtioning, BDS: Beck depression scale, ESS: Epworth sleepiness scale

DISCUSSION

Our study shows that nurses working in the PICU have a pathologic degree of sleepiness. Suzuki *et al*. found that 26% of the nurses surveyed reported excess sleepiness.[12] The ESS showed that 63.7% (28) of nurses had excessive daytime sleepiness (The ESS score ≥10) and the score of the nurses working in PICU was significantly higher than the nurses working in service and polyclinics. ($P < 0.01$) Similar to the findings of our study Scott *et al*. randomly found that almost two-thirds of the critical care nurses reported struggling to stay awake at least once during the study period.[13] We attributed this to the fact that nurses working in intensive care units are heavier in terms of working conditions and that the patients they follow are worse than the patients in the wards.

In our study, BDS score of the nurses working in PICU was higher than the nurses working in service and polyclinics. ($P < 0.01$) Women who choose nursing profession have a variety of responsibilities both at home and in business, on the one hand, being a mother and a partner on the other hand. They are at risk for mental complaints as they undertake many different social roles. In addition, intensive care nurses can be said to be more stressful than other units because of the need for emergency intervention and precise follow-up and the presence of more patients and workload. We were also evaluated the influencing factors of BDS, ESS, and PSQI. Using univariate logistic regression analysis, working in PICU was independently associated with BDS and ESS. With multiple logistic regression analysis, we found one working in PICU significantly contributed to the sleepiness and depression among the nurses.

The night shift nurses in this study had worse sleep quality (PSQI score: 15) compared to those who worked day shift (PSQI score: 10). This finding is consistent with other studies.[3,14] Ruggiero reported that nurses who worked a fixed night shift and rotation shift had higher PSQI scores (7.86 and 7.31, respectively) compared to those who worked day shift (PSQI score, 6.37) (3). A study of the general population by van Mark *et al*.[14] also reported that shift workers had a significantly higher mean PSQI score compared to day workers (6.73 vs. 4.66) regardless of occupation.

In this study, we found that PICU nurse's PF levels were higher and PHR (Role Limitations Due to Physical Health) levels were lower than the service and outpatient clinics. Despite the fact that they work harder than nurses in the service and outpatient clinics, we attributed this situation to a small number of elderly nurses in the intensive care unit. Gholami and colleagues found that nurses who worked 10 or more years in their work had more difficulty in the FF field than those who worked in shorter durations.[15]

Pain scores of polyclinic nurses were higher than others. We attributed the high pain scores of the outpatient nurses to the older nurses in the outpatient clinic and their chances of having chronic illness due to their age.

In conclusion, our data indicate that nurses working in the ICU are significantly more sleepy than nurses on the floor. Among nurses, current or previous night work experience was associated with more caseness of insomnia than no night work experience. It should be taken into consideration that the service provided by health personnel may affect human health very seriously. Therefore, this issue should be approached in consideration of how seriously the performance of sleep disorders will affect their performance.

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